IN THE SPECIFICATION

Please replace the paragraph beginning at page 15, line 20, with the following rewritten paragraph:

If the encoder and decoder module 303 is being used as a repeater, the decoded data is fed through channel 345 to data processing unit 360. Alternatively, completely different data can fed to data processing 360 as input data. Data processing block 360 can convert the format of the input data or decoded data into the parallel bit stream used by the FEC encoder 370. The data processing block 360 also adds any overhead information to the input data, if the overhead information has not already been added. Such information can include frame alignment signal and network management, supervisory and control information. Output 365 of the data processing block 360 is generally formatted so that every three bytes of the input data are directed to one three-parallel encoder of the FEC encoder 370. The FEC encoder 370 comprises a plurality of three-parallel encoders, which are shown in more detail below, and outputs 375. The synchronizer and signal processor 380 creates appropriate clock signals for the serializer 390 and also packages the input data into a three-parallel frame 400. Serializer 390 converts the three-parallel frame 400 into a serial bit stream entitled "output data" in FIG. 3. This output data can then be transmitted by optical transmitting unit 395 or, optionally, by serializer 390. Optical transmitting unit 395 converts the serial bit stream of the output data to an optical representation of the bit stream. The optical transmitting unit 395 can comprise, for instance, a laser diode or light-emitting diode and modulation system.

Please replace the paragraph beginning at page 24, line 4, with the following rewritten paragraph:

(3) The syndrome generators need to process all 255 symbols in one block to compute the syndromes. If three input symbols are processed per cycle, syndrome generation requires 85 ~~cycle~~ cycles to complete. This calculation has nothing to do with how many syndromes are generated. For example, if the system uses an RS(255, 249) code instead, six syndromes need to be generated. To achieve 40Gbits/s throughput rate with a clock rate of 112MHz, a three-parallel syndrome generator that processes three

bytes of incoming data per code block is needed for each of the 16 component code ~~block~~ blocks.

Please replace the paragraph beginning at page 24, line 8, with the following rewritten paragraph:

(4) In the Chien's search block, the error locator and error evaluator polynomials need to be evaluated at 255 possible symbol locations in order to decide which of them have errors. A serial Chien's search circuit would require 255 ~~eyele~~ cycles to complete the Chien's search, which is too much of a delay.